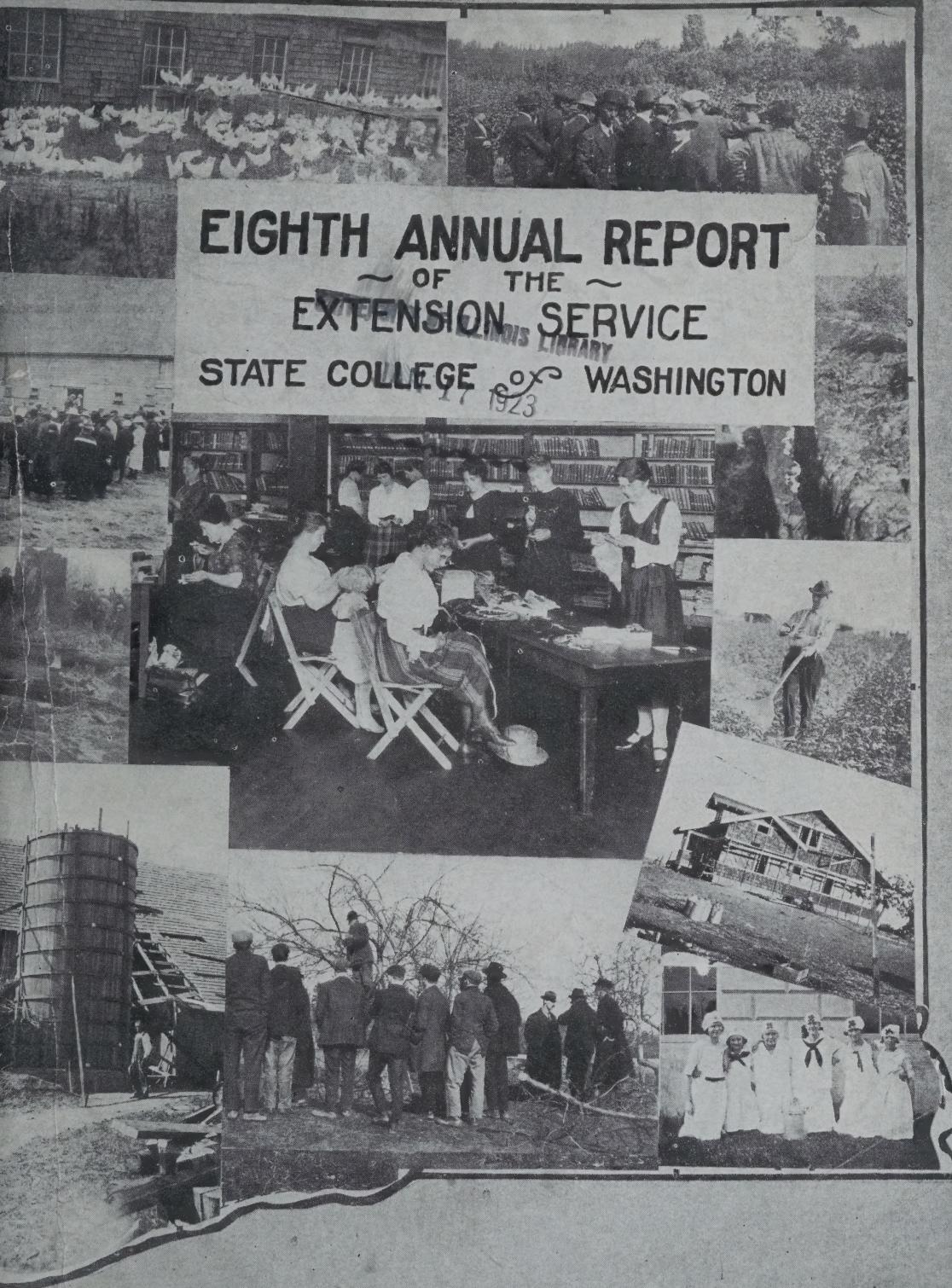


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# EIGHTH ANNUAL REPORT OF THE EXTENSION SERVICE STATE COLLEGE <sup>DIS LIBRARY</sup> OF WASHINGTON 1923



BULLETIN N° 93

DECEMBER 1922



# Eighth Annual Report

of the

## EXTENSION SERVICE

OF THE

### STATE COLLEGE OF WASHINGTON



For the Year  
Ending November 1st,  
1922.

The State College of Washington and United States  
Department of Agriculture Co-operating.

**LETTER OF TRANSMITTAL**

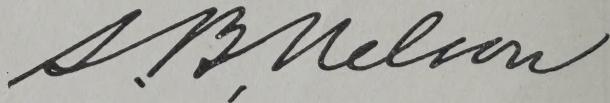
November 15, 1922.

President E. O. Holland,  
State College of Washington.

Dear President Holland:

I have the honor to submit herewith the eighth Annual Report on the work of the Extension Service of the State College of Washington, in cooperation with the U. S. Department of Agriculture for the year ending November 1st, 1922.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "S.B. Nelson".

Dean and Director.

## REPORT OF AGRICULTURAL EXTENSION SERVICE IN WASHINGTON 1922

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The field staff of the Extension Service, both specialists and agents, has performed a much larger, more definite and better service to the rural people leading toward the establishment of a more permanent and more profitable agriculture and a better rural social life the past year, than it has during any prior year since the establishment of the Extension Service in the state.

Results of Extension Service work are evidenced in the rank the state holds in the production and value per unit of many agricultural products from dairying, poultry raising, vegetable gardening, cereal production, livestock raising and fruit growing.

The time is probably here when other problems must be given still greater attention in order to hold this state to its present high rank in production or even to increase such production.

The farmer is doing fully his share in trying to keep an equitable relationship between the purchasing power of his productive energy and that of other phases of labor, by decreasing as far as possible his producing cost, but this alone is not sufficient to place his labor on an equitable purchasing basis with other labor. Much has been done to adjust this unfavorable condition and unjust situation, but much more must be done by all the means at the command of those clothed with authority—if the United States is to have a prosperous agriculture as a sound foundation for a continuously prosperous nation. The Extension Service as one factor is bending every energy to do its part in reaching such accomplishments.

### Administration

Administrative work has continued to be heavy during the past year, because of the reorganization in the States Relations Service at Washington, which reflected itself upon the states service until it was coordinated with the policy of the United States Department of Agriculture. This has now been accomplished and the Administration should be much strengthened by the reorganization.

The plan called for the replacement of the state leaders by three assistant directors; one in charge of programs, one of methods and the other of reports. The state has also been re-districted into three districts and each of the assistant directors has supervision over all the Extension work in each county in his respective district.

#### STATE ORGANIZATIONS

There are many state Farmers Associations in Washington including the Farm Bureau, Grange, Farmers' Union, Wheat Growers' Association of Washington and Idaho, Wool Growers, Shorthorn Cattle, Horticultural, Washington Livestock Producers', Dairy and



Demonstrating the Methods of Culture in Small Fruit Raising on a Berry Tour in Pierce County with 110 People Attending.

Pure Seed Associations. The Extension Service thru its administration, officers, leaders, specialists and all county agents is in close touch with most of these organizations and is constantly endeavoring to bring them all into closer contact for the betterment of the agricultural interests of the state.

#### SUMMARY OF EXTENSION SERVICE ACTIVITIES

The results of the Extension Service accomplishments showed a splendid record of achievement.

The Service held 10,411 meetings in charge of agents and project leaders with an attendance of 197,649 farmers, farmers' wives, boys and girls.

**RESULTS OF DEMONSTRATION WORK**  
October 15, 1921 to October 15, 1922 For All Extension Work

Name of Projects	Number of Counties	Number Demonstrations Complete	Demonstration Meeting No.	Meeting Att.	Units of acres in demons.	Resultant Profits due to Increase
<b>Agricultural Engineering</b>						
Drainage	14	66	43	445	14,970 A.	\$ 243,310.50
Land Clearing	11	26	24	4122		
Septic tanks, water systems	11	70	12	108		
Soil and Fertilizers	22	205	123	1936	12,457 A.	161,647.44
Crops	25	291	19	317	31,084 A.	82,428.00
Horticulture	17	279	289	8281	18,737 A.	95,906.00
Bush and Berry fruits	5	32	20	378	20 A.	7,375.00
Potatoes	18	40	70	749	74,916 bu.	82,730.00
<b>Plant Disease</b>						
Wheat Smut	13	79	26	979	425,655 A.	53,870.00
Potato Disease	22	201	187	3014	7,870 A.	42,350.00
Oat Smut	10	44	11	101	1,444 A.	3,101.00
Rodent Control	12	169	117	3344	778,368 A.	1,080,900.00
Farm Management	16	89	54	1388		200,122.12
<b>Livestock</b>						
Dairy	11	45	78	3953	3,364	
	15	62	100	4786	12,466	238,440.00
<b>Poultry</b>						
	22	231	205	6532	Birds	42,567.75
Bees	13	91	90	1094	Colonies	13,834.00
Clothing	16	979	1012	12645	Families	6,442
Food and Nutrition	19	127	740	14064	Families	2,525
Home Management	26	431	228	5568	Families	467
<b>TOTALS</b>						
		3559	3448	73,804		\$2,572,310.56

The Service made 15,188 farm and home visits, answered 31,259 office calls for information, prepared 1841 articles for publication in 28 counties and wrote 48,618 letters in course of daily duty.

A total of 71,068 farms were reached by the Extension Specialist and county agents in the following projects: Livestock, 4,751; dairy, 7,825; poultry, 8,411; bees, 2,560; soils and crops, 4,931; rodent control 8354; drainage and land clearing, 4787; farm management 3343; horticulture, 12,334; marketing, 5,157 and plant diseases, 8,617.

The suggestions offered by the Service were applied to 12,466 head of dairy cattle, 3364 beef cattle, swine and sheep, 74,916 bushels of potatoes, and the crops of 1,275,695 acres of land, the drainage of 14,910 acres of land, 11,143 colonies of bees, 13,852 boys and girls.

Financial returns of the above service amounted to \$2,640,208.80 by reason of an increase in saving and income through the better methods of farming adopted. Of this amount, \$67,898.44 were the net earnings of 3278 of the 6434 boys and girls in club work.

### **SUPERVISION WORK**

The following summary includes the supervision work of the Home Demonstration Leader and Assistant County Agent Leaders during the past year.

#### **Field Work**

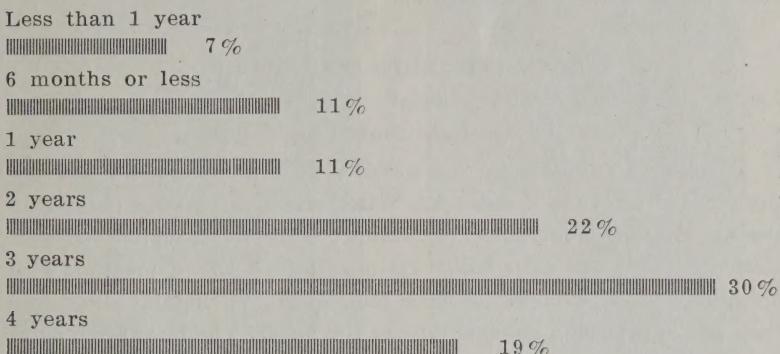
The plan started three years ago of meeting with community leaders each fall for the purpose of deciding upon the work for the following year, has been continued. In a few instances this plan has been modified to suit local conditions. A special effort has been made to show that Extension work is for all people regardless of membership in any organization. In planning community work the Extension Service has cooperated with many other organizations.

#### **State Supervision**

Supervision work was conducted in 35 counties. Of the 333 $\frac{1}{4}$  days spent in the field, 75 of them were used in conducting demonstrational fair exhibits. A total of 202 visits were made to the different counties, during which time 46 meetings with Extension committees were attended, with an attendance of 256 committeemen. Eighty-two other meetings were held by the three leaders, having a total attendance of 5966.

### **Period of Service**

The accompanying chart gives estimates which show that the county agents are holding their positions longer than during the past year:



### **Summary of Organization**

Six counties with home demonstration agents reported that 197 schools for local leaders had been held. Out of a total of 221 communities organized for Extension work 147 communities adopted projects. Six counties without home demonstration agents reported 68 communities organized of which 52 adopted demonstration projects.

### **Work Accomplished by Local Leaders**

Local project leaders accomplished the following results without assistance from specialists or agents: Secured 351 new leaders, held 125 training classes with an attendance of 1445, held 1118 meetings and demonstrations with an attendance of 10,463; 1003 conferences, visited 115 homes relative to collecting records and 183 homes to supervise demonstrations.

### **Finances**

The finances of the Extension Service are based upon the funds made available through the Federal Smith-Lever funds affected by the State Smith-Lever funds and supplemented by county funds.

In the expenditure of these funds for the period covered in this report, 74% was spent for salaries and expenses of county agents,

17% for salaries and expenses of specialists, 8% for Administration and supervision of work and 1% on Extension schools, printing, bulletins, Rodent Control, etc.

Every endeavor is being made to increase the percentage of the funds for agents' work in the field.

#### **BOYS AND GIRLS CLUB WORK**

Abstract of Report of F. L. Audrain, State Club Leader, and Elmina White, Assistant State Club Leader

The State Club Leader has handled general supervision and the Assistant State Club Leader has handled home making club, club sewing, canning and foods. The supervision work includes organization of boys and girls clubs, training local leaders, meeting with organized clubs, surveys, visiting club members, holding club contests and supervising club exhibits at the fairs. The total attendance at 447 meetings on club work was 9290. One hundred sixty-nine meetings were held with organized clubs with a total attendance of 3196 and 196 training schools were held for a total of 534 leaders in club work.

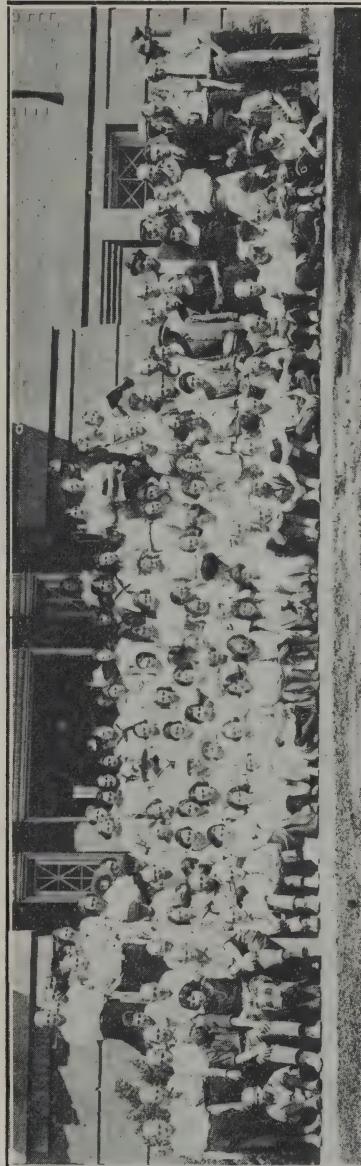
#### **Supervision**

Assistance was given in supervising club exhibits at the state fair, three district fairs and four county fairs. Assistance was given in preparing eight livestock judging teams to be sent to the Pacific International Livestock show. Assistance was given in training the state champions and canning team for the northwest counties at the Land Products Show to be held in Portland, November, 1922. Help was given club members in 13 counties in putting on demonstrational exhibits at fairs.

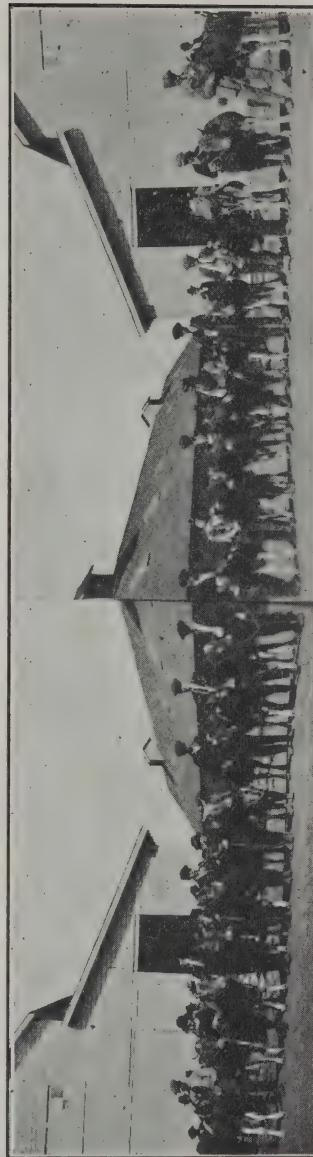
Club exhibits and demonstrations have been put on at 62 community fairs, 17 county fairs, three district fairs, two district livestock shows, three potato shows and the State Fair with the assistance of Extension workers from 26 counties.

#### **Boys and Girls Club Week at the State College**

A week of instruction, play and entertainment was given to 123 boys and girls from 23 counties. These boys and girls were selected from those scoring the highest in club work in their respective counties.



Training Junior Farmers at The State College of Washington During Boys and Girls Club Week.



The Beginning of Future Purebred Dairy Herds in the Yakima Valley.

### **Publicity**

Report of the Extension News Editor shows that a total of 11,585 inches appeared in the newspapers of the state devoted to club work, which includes a total of 1431 issues of the papers using this information.

### **Personel**

County club agents have been maintained in Cowlitz, Thurston, Pierce, Yakima, Benton and Spokane Counties.

### **Enrollment**

Club enrollment has been conducted in 33 counties with a total enrollment of 6434 members in the following: Bees 77, Canning 663, Corn 28, Beef 38, Dairy cattle 343, Garden 1347, Pigs 407, Potato 119, Poultry 664, Rabbits 66, Home Management 32, Hot Lunch 39, Cooking 219, Sewing 2516, Sheep 38 and Colt 6.

The total net saving as results of club activities was \$67,898.44.

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### **CORRESPONDENCE COURSES**

#### **1922**

Botany C 2, enrollment—1; cereals, enrollment—1; farm accounts, enrollment—3; fruit growing, enrollment—2; (vocational—1) insect pests, enrollment—1; milk production, enrollment—3; (vocational—1) poultry, enrollment—18; (vocational—2) small fruits, enrollment—8; (vocational—5) soils, enrollment—3; vegetable gardening, enrollment—2; Total—42; (Vocational—9).

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### **PUBLICATIONS**

The following Extension Bulletins have been issued during the past fiscal year: Bulletin No. 73 "How to Make the Paper Tape Dress Form" by Maud M. Wilson; Bulletin No. 74 "Cranberries, Twenty-five Ways of Preparing for the Table" by Leila W. Hunt; Bulletin No. 75 "Control of European and American Foul Brood and Wintering of Bees" by B. A. Slocum; Bulletin No. 76 "Fruit in the Diet" by Mary E. Sutherland; Bulletin No. 77 "Abortion Disease of Cattle" by J. W. Kalkus; Bulletin No. 78 "The Use and Alteration of

Commercial Patterns" by Helen K. Robson; Bulletin No. 79 "Suggested Outlines for Clothing Clubs" by Ruth Cresswell; Bulletin No. 80 "Women's Household Exhibits at County and Community Fairs" by Florence Harrison; Bulletin No. 81 "Peach Leaf Curl" by B. F. Dana; Bulletin No. 82 "Organization and Requirements of Boys' and Girls' Clubs" by F. L. Audrain; Bulletin No. 83 "Manure, Its Value and Use on Washington Farms" by F. J. Sievers; Bulletin No. 84 "Home Canning Guide" by Elmina White; Bulletin No. 85 "Plants for Home Beautification" by A. M. Doerner; Bulletin No. 86 "Suggested Outlines for Cookery Clubs" by Mary E. Sutherland and Elmina White; Bulletin No. 87 "The Food Value of Eggs" by W. D. Buchanan and Mary E. Sutherland; Bulletin No. 88 "Marketing Honey" by B. A. Slocum; Bulletin No. 90 "The Four Best Winter Wheats" by E. F. Gaines; Bulletin No. 89 "The School Lunch" by Mary E. Sutherland; Bulletin No. 91 "Convenient Farm Homes" by L. J. Smith, Rudolph Weaver and Minerva M. Lawrence; Bulletin No. 92 "Milk as a Food for the Family" by Leila W. Hunt, with a total of 122,000 copies.

Three circulars, making a total of 12,000 copies, have been issued as follows:

Home Economics Circular No. 27 "Botulism and Home Canning"—Leila W. Hunt, Lawrence Motyca and Mary E. Sutherland.

Home Economics Circular No. 28 "Food Habits Score Card"—Mary E. Sutherland.

Home Economics Circular No. 29 "Health Program in the Kansas City Schools 1919-1921"—Maud A. Brown.

In addition, a large number of bulletins issued by the U. S. Department of Agriculture have been distributed upon request through this office.

A supplement to the Farm Account Book was issued in May. A Poultry Account Book was issued in January, then revised and re-issued in November with a total of four thousand copies. "The Co-operator," an inter-staff publication, is issued monthly to all extension workers. The "Digest of Extension Service Activities," containing digests of extension workers, reports grouped by project and summaries of all state-wide activities, is printed in bulletin form and distributed monthly to a mailing list of 1600.

A monthly Extension Service News has been issued to the state press with a total of 10,000 copies. In addition, special feature stories are sent to selected lists of papers for immediate release.

The "Extension Service Boys' and Girls' Club Record," a six to eight page illustrated paper devoted to live club news and instructions in all projects, is issued monthly and sent to a mailing list of 9000.

July marked the first issue of the "Mail-O-Gram," a short, concise statement of timely information on projects issued by each specialist, and it is mailed weekly to a mailing list of 11,000.

#### **Mailing List**

The classified mailing list has nine projects heading as follows: Bees, Crops, Dairying, Home Economics, Horticulture, Poultry, Livestock, Soils and Vegetables.. Names are placed on the list by request and the list is revised continually. We have approximately 11,000 names on the list at the present time.

#### **Methods Used for Distribution**

Bulletins are distributed through the mailing department by use of mailing lists or special request, and by furnishing County Agents with a supply. All mimeographed and multigraphed material is mailed in the same manner. All cuts are catalogued by the College Library and handled entirely by that department.

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### **EXTENSION PROGRAM**

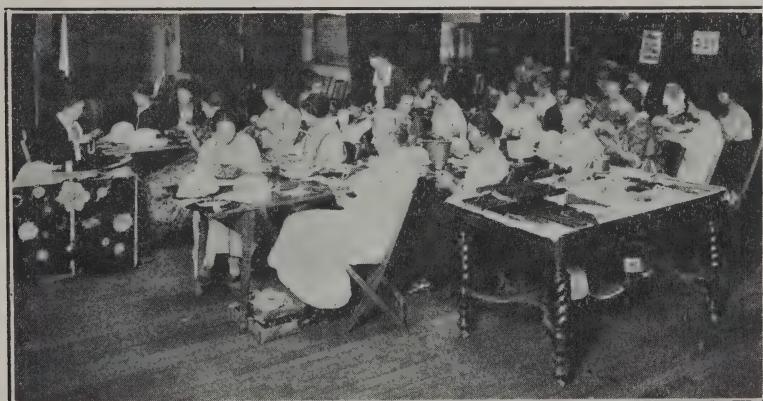
The development of an extension program requires the clearest vision and thinking in looking forward into the future and laying plans, months and years in advance, with a definite aim accomplished as the final result. Such a program must touch and reach the industry in proportion to its needs and volume of production, and must have a definite step each year with an ultimate large spread of influence and attainment.

Extension programs in Washington are being planned to meet these broad requirements. Four and five year programs have been started and adopted in several projects and all will be placed on this basis in the near future. Under this system ill-timed, poorly planned, fly-by-night departures are eliminated and instead a con-

sistent, well conceived plan followed which has the cooperation of all existing interested agencies.

A farm community is the desirable unit for the development of a program of extension work. In addition to these community programs there must be a well defined county and state program of work, tending to solve farm problems in a broad way. The state program is planned in conference with extension agents and specialists, who have been in close touch with their research departments in the college. This state-wide porgram is based on the existing economic and production condition.

In Washington our community programs are the expression of the wishes of the farmers and their families for detailed community



One of the 389 Training Schools for Local Leaders Where 1500 Women Were Trained in Home Sewing Methods.

help which is developed by Extension committees composed of farmers and farmers' wives, and farm boys and girls. The formation of these programs is guided, to some extent, by the suggested state projects which may be fitted into the community program.

In order to make this procedure of program building as thorough and easy as possible, specialists' time budgets and tentative state-wide programs are available. These tend to guide the community committees in their program planning and give them advance information on specialists available for the coming year.

A progressive advancement has been made in formulating state programs in the shape of a representative state-wide project committee. Such a project meeting has been held in poultry and its success has given momentum to the movement which will extend to other projects this year. The reactions of a state-wide group of men interested in one project are of inestimatable value in shaping the proper state-wide program. The value of their suggestions, support and backing in getting the project on its feet and giving it publicity cannot be over-estimated.

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#### **PLAN FOR IMPROVING EXTENSION METHODS**

In order that a well-defined and well-rounded extension program may be carried out, it is essential that care be given to the problem of determining the methods by which each goal may be reached. Every long-time program has a goal, which is expressed in terms of improvement of the entire industry, or in terms of the entire rural population. It is evident that such a goal is away out of reach, unless we build a ladder to reach it, and the steps on this ladder are the specific goals undertaken by community committees each year. The working unit for extension program is the community and the time unit the year.

These specific community goals must be determined so as to dovetail into the larger goal of the long-time program. Then they must be met, point by point, and it is the business of the extension agent and specialist to help the community meet its goal.

In helping to met these goals, the service is hampered by many factors. Added funds for the employment of extension agents and specialists do not keep pace with the development of interest in new projects or new communities. The number of days help which can be given to any one community project is necessarily very limited. The service which project leaders and local committees can render should be utilized to the fullest possible extent, and the extension agent or specialist called upon only when expert assistance is found necessary.

In order that project leaders and local committees may secure the greatest possible returns for the time which they put into local extension programs, the extension service must be prepared to render them aid in organizing their own work. We appreciate the fact that

our most efficient leaders are men and women whose time is full. They must always feel that they are getting value received for the part they play in the extension program. The most valuable factor in the entire extension system is the community project leader who serves year after year, gaining experience in reaching people and gaining a more intimate knowledge of local conditions. Extension programs and extension methods should be such as to engage the continued interest of the "best minds" of the community, county or state.

Many devices such as extension schools, tours, and bulletins are utilized quite universally. For such as these, it is possible to work out standards and this is the responsibility of the extension service. Anyone who reads extension reports is struck by the tremendous difference in the effectiveness of methods as they are carried out in different communities, and standardizaton will have to effect the bringing of communities up to the level of the best.

The first step is to make a time budget. Time is money in the extension service. Whenever a budget is made either of income or time, it usually happens that the contemplated expenditure is pretty severely scrutinized, and less important matters give way to the more important. A number of the specialists and a few of the agents made time budgets this past year that were found to be very helpful.

This year an attempt will be made to secure from each agent a statement of the methods to be followed in carrying out the community project for the current year. This information will enable the methods specialist to compare the effectiveness of methods used in the light of results obtained in various communities, and to make recommendations for discontinuing some, and extending the use of others.

The matter of working out methods for carrying out joint programs demands consideration. There is nothing gained by planning a unified program of farm and home betterment unless both men and women are given a part in carrying out the project. In making such plans, it is necessary to assign to the women the part for which they are best adapted and to do the same for the men. For example: in introducing the inexpensive septic tank into a neighborhood, farm women may make the survey, develop interest, and secure places for demonstration; while men are needed as local leaders for passing on information as to how to build the tanks.

Careful consideration must be given to the matter of utilizing local leaders to the best advantage. Local leaders must be carefully chosen, for the expense of training them is not justified unless the community has sufficient faith in them to be willing to accept what they are ready to pass on as a result of their training. Everyone who accepts the responsibility of local leadership must receive adequate training and this training must be standardized for any project that is county-wide or state-wide in character.

Still another point is that of utilizing the junior demonstration to the fullest extent. During the past year several club projects have been started which are departures from the routine. Boys and girls should be considered first in the planning of a new piece of work. It has been shown that without doubt the spread of influence from junior demonstrations exceeds that of adult demonstrations.

Often needless time is spent by failing to arrange for the attendance of the leaders of Boys' and Girls' Clubs at the schools, training classes, and field demonstrations put on for adult cooperators. For example: in two counties where schools for training judges for household exhibits were held last year, club leaders were brought in, as well as representatives of the women. In this way two means of securing spread of influence were assured without extra expense.

It is through the study of proposed methods that we are able to hold extension service work true to type. It is essentially educational in character. It is instruction by demonstration and it requires that no service be rendered to the individual on his own problems and for his own sake. It assumes that when anyone receives help it is with the idea of utilizing that help in the farm or home work as a demonstration of an improved practice for the rest of the community.

It is necessary, therefore, that such instruction as is given at extension schools, field demonstrations, through bulletins and the like, be prepared for the single object of furthering these demonstrations.

It is also essential that adequate reports be secured of results obtained, and that adequate publicity be given to these results. Unless the latter be attended to we are in the position of the farmer who plows, harrows, sows, but does not bother to reap. Not all methods for giving publicity to results of demonstrations are equally

effective. Some call for only local publicity; others for county-wide or state-wide. Some demonstrations need only reach a small group; others are of interest to every farmers in the state. It is, therefore, necessary that any means used for giving publicity to the result of demonstrations be such as will reach effectively the group of people who would be most benefited by adopting the suggestion given.



A Group of Children in a Nutrition Class Who Have Come Up to Normal Health-Weight, Receiving Certificates From the State College

#### **Summary of Plans for Improving Extension Methods**

1. Budget time of agents and specialists.
2. Work out standard for more improved methods in use.
3. Compare effectiveness of methods in the light of results.
  - a. Carrying out joint programs.
  - b. Giving instruction through demonstrations, press articles, extension schools, educational tours, and the like.
  - c. Choosing, training, and using local leaders.

- d. Using Boys' and Girls' Club members as demonstrators.
  - e. Combining the training of club members and leaders with that of adult demonstrators.
  - f. Securing reports of results of demonstrations.
  - g. Assuring spread of influence of demonstrations.
4. Keeping extension methods true to type—minimizing individual service.

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### AGRICULTURAL ENGINEERING EXTENSION WORK

#### Abstract of Report of A. B. Crane, Extension Specialist in Agricultural Engineering.

Many projects which were planned during 1921 and reported "nothing done" or "unfinished," have been completed or commenced this year, giving us definite reports on results. Results on increase in crop yields could not previously be reported because a crop year had not elapsed since completing the work. Gratifying reports on increased yields have been received, most of them reporting an increase of 100% or more over the yields before drainage.

As an example of increase in crop, W. W. Gallanger of San Juan county made the statement that the 40 acres drained by open ditch produced three times the yield in oats as the year before. Estimated yield previous to drainage amounted to 20 bushels per acre.

Work was conducted in 20 counties of the state, including plans for draining 3808 acres of land on 134 farms; 2362 acres of irrigation on 33 farms; 41 water supply systems; 50 septic tanks and 19 farm water power plants.

One hundred and forty-eight farms reported agricultural engineering work done or in progress as follows:—Draining of 2168 acres on 47 farms; placing under irrigation 1298 acres on 16 farms; water supply systems installed on 28 farms and the making and installing of 57 septic tanks.

Assistance was given in the organization of nine drainage districts involving 14,970 acres. During the year 40 meetings were held with a total attendance of 2610 people.

### **Publicity**

The number of articles written by the specialist or furnished by the Extension News Service was three which appeared in 51 issues of newspapers and covered a space of 1048 inches. Articles prepared and given out by the county extension service were published in 263 issues and covered 1657 inches of news space. News articles and information relative to agricultural engineering occupied 2705 inches in the newspapers of the state.



A Stump Burning Demonstration Held in Snohomish County, Where a New Method of Land-Clearing was Shown.

### **Future Plans**

The general plan for the coming year includes a continuation of the work organized with less attention to some projects and the addition of one or more other lines. Land clearing is a subject which needs attention and help might be rendered by awakening more interest in machinery and methods of economically clearing the logged-off lands. County agents reported that the saving made through drainage, irrigation, water supply systems, septic tanks and water power plants on farms, amounted to \$243,310.50.

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### **APICULTURAL EXTENSION WORK**

Abstract of Report of B. A. Slocum, Extension Specialist in Apiculture

The work in apiculture during the past year has had as its aim the increased production of honey by: Educating the beekeepers in

better methods of beekeeping; conducting campaigns to gain control of disease; eliminating "Box Hives"; combating spray poisoning; promoting beekeeper associations; developing and organizing Boys' and Girls' Bee clubs and introducing purebred stock.

Progress was made with all of the work outlined above by the bee specialist cooperating with the county agents and bee committee-men of the local beekeepers associations.

### **Education**

The educational work was accomplished thru schools, demonstrations, bulletins, fair displays, and newspaper publicity. The Boys' and Girls' Bee Clubs also assisted in this work. Seventeen schools were held with an attendance of 1358. Ninety demonstrational meetings were held with an attendance of 1094. General meetings held 15, attendance 108. Total meetings held 123 with an attendance of 2560.

The specialist prepared an educational exhibit which was sent to five fairs, the Interstate Fair at Spokane, Walla Walla county fair, the State Fair at Yakima, Snohomish county fair at Granite Falls, and the Western Washington fair at Puyallup. This exhibit dealt with equipment for beekeeping, diseases of bees and with the standardization of bee products.

### **Disease Campaigns**

Disease campaigns were conducted along two lines, inspectional and educational work.

Only 310 of the total number of apiaries inspected have been reported. Examination was made of 5110 colonies. Disease was decreased 18% in Whatcom county, 17% in King county and 5% in Cowlitz county; while the decrease in Pierce county is not known. Four years ago Pierce county led all the counties of the state in the amount of disease, at present only 7% of the colonies are diseased. The per cent of disease in the various counties shows: Whatcom, 22; Skagit, 20.4; Snohomish, 17; King, 11; Pierce, 7; Thurston, 47.7; Mason, 64; Grays Harbor, 67.4; Lewis, 10.8; Cowlitz, 14; Yakima, 6; Walla Walla, 11.9. The specialist also examined 20 disease samples which were received at the office.

### **Box Hives**

The results of this work will be more apparent next year, for many bee keepers are waiting till spring to transfer their bees. Percentage of box hives in the various counties at present shows; Cowlitz, 5; King, 11.8; Whatcom, 16; Pierce, 6.5; Mason, 31; Thurston, 10.2; Lewis, 6.8; Snohomish, 16.9; Skagit, 18.3; Walla Walla, .9; Grays Harbor, 24.5; Yakima, 5.



Demonstrating the Latest Methods of Manipulating Bees.

### **Spray Poisoning**

The specialist obtained the cooperation of the Experiment Station in this work. Since there was plenty of flora outside the orchards for the bees to work on during the time of spraying, it has been impossible to secure definite results, making it necessary to continue the work another year. It is believed that the solution of this problem has been found in the form of a repellent which is placed in the spray. The work thus far indicates that the use of either Milkol or one of the miscible oils in the sprays would solve the problem.

### **Promotion of Beekeepers Associations**

Effort has been made to revive some of the languishing associations. There are at present 14 associations. The State Association and the Peninsular Association are the largest, the latter comprising six counties while the following counties and sections have associations: Grays Harbor, Mason, Pierce, Thurston, Lewis, Spokane, King, Snohomish, Whatcom, Yakima, Walla Walla and Vashon Island.

### **Club Work**

Eleven Boys' and Girls' Bee Clubs were organized. They are doing good work in educating their neighbor beekeepers, assisting in transferring box hives, requeening and inspectional work. Exceptional exhibits were made by them at the Grays Harbor and Western Washington Fairs. Counties with their number of clubs show; Pierce 4, Thurston 1, Benton 2, Grays Harbor 2, Walla Walla 3, Yakima 1.

### **Purebred Stock**

Purebred stock was emphasized during the year with the result that 3003 queens have been imported into the state. Mason county reports that 50% of the colonies within the county were requeened with Italian stock.

### **Publicity**

The number of articles written by the specialist or furnished by the Extension News Service was 19 which appeared in 165 issues of newspapers and covered a space of 1278 inches. Articles prepared and given out by the county extension service were published in 329 issues and covered 2293 inches of news space. News articles and information relative to apiculture occupied 3571 inches in the newspapers of the state during the year.

### **Saving**

Through the work of the specialist cooperating with county agents and beekeepers, \$13,834 was saved, which included \$12,703 in disease control; \$345 by reason of the elimination of box hives and \$786.00 in Boys' and Girls' Club work.

## **CLOTHING EXTENSION WORK**

Abstract of Report of E. Belle Alger, Extension Specialist in Clothing  
and

Maud Wilson, State Home Demonstration Leader

Six thousand four hundred forty-two families were reported from 12 counties as having adopted suggestions as to the improvement of home sewing methods which had been made by agents, specialists and local leaders. One thousand five hundred and ten conferences on clothing problems were held and one thousand twelve lecture demonstrations given with an attendance of 12,645 people. Three hundred eighty home visits were made relating to the clothing demonstrations under way. The total attendance at all clothing meetings was 19,917.

An attempt was made to secure definite information as to the extent to which women receiving suggestions had been able to profit by them. In five counties reports were received from 1171 families which showed a total saving of \$86,327.00.

### **The Work of Local Leaders**

The work of local leaders in clothing deserves special mention. Three hundred eighty-nine schools for local leaders were held in 21 counties by agents and specialists with an attendance of 5310. Local leaders were trained in schools to assist in conducting 738 community projects in 19 counties.

Reports from 16 counties show that 836 meetings attended by 8679 people were held by local leaders without the assistance of Extension agents or specialists. Conferences and home visits were made by local leaders who came in contact with 791 people.

Clothing helps were given by local leaders to 5556 persons, residing in 6 counties.

### **Dress Form Making**

As a part of the work 5232 dress forms were made in 20 counties. The estimated value of the completed form was placed at \$15.00 each, which means that the saving, by making forms instead of having them made, amounted to \$57,503.

Dress form work was started in 248 communities in 16 counties. This completes the work of training leaders in dress form making in almost every county.

### **Principles of Sewing**

Rapid progress was made in the standardization of instruction in sewing principles. One unit for which leaders were trained was on the use of the dress form as a short-cut in garment planning and fitting, and pattern cutting and alteration. Six hundred thirty local leaders were trained for 291 community projects in 14 counties. Through the efforts of these local leaders as well as the work of the agent and specialists, 2816 women were reached.

Reports from all the workers show that 4130 garments were made and 2514 patterns cut or altered using the dress form. These women reported that their dress forms had saved them \$9165.00 and 4076 hours of labor. At this rate the owners of the 5232 dress forms were able to save \$104,640.00 and 99,408 hours of labor, by the use of the dress form.

Other units of instruction in the principles of sewing were the alteration of patterns to measure, the making of garment finishes and the making and use of decorative stitches.

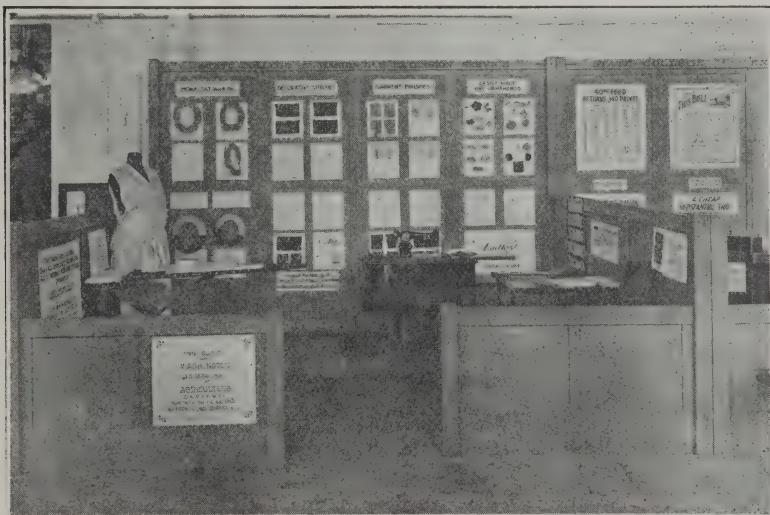
Wherever the women of a community wished to work on garments for themselves under the direction of an expert, the agent has been instrumental in connecting up the group with a woman who is prepared to give such help. Such groups were formed in three counties with an enrollment of 72, and made 254 garments at a saving of \$3043.00. A total of 4384 garments were made in the state.

### **Millinery**

This is the first year that local leadership in millinery has been attempted, except in scattered communities, and reports of results from their work cannot be expected for some time. The specialist plans to give each group of local leaders seasonal training, until they have reached the degree of independence in the handling of materials that is necessary for effective leadership. These local leaders, however, are expected to pass on to their neighbors, such parts of the information which they receive as they feel competent to handle. This year 391 local leaders were trained for 131 community projects..

The number of persons assisted in hat making by local leaders as well as agents and specialists was 1428.

The number of hats made or remodeled in 8 counties was reported to be 1410 with a total saving of \$6966.00. Wherever the women of a community wish to work on their own hats under the direction of a competent instructor, the home demonstration agent assisted them in forming groups and finding an instructor for them. Such groups were formed in four counties with an enrollment of 661. One thousand five hundred ninety-four hats were made at a saving of \$9650.00. Total number of hats made in the state was 3004.



An Extension Service Fair Exhibit Illustrating the Clothing Work.

#### Exhibits and Judging

The specialist prepared an exhibit which was sent to the larger fairs of the state. The exhibit was designed to show mainly the character of instruction for which the local leaders can be trained.

A series of one day schools for the judging of household exhibits was held during July. Thirteen of these schools were held in nine counties with 405 representatives attending from 68 communities.

#### **Number of Garments Made and Remodeled**

1919	\$5,568.40	
		922 garments
1920		\$17,541.00
		2606 garments
1921		\$22,176.00
		3091 garments
1922	\$9165.00*	
		4130 garments

#### **Number of Dress Forms**

1919	\$4,122.25	
		582 forms
1920	\$8,040.00	
		1068 forms
1921		\$36,125.00
		3150 forms
1922		\$57,503.00
		5232 forms

#### **Number of Hats Made and Remodeled**

1919	\$5,695.00	
		1089 hats
1920		\$18,238.00
		2391 hats
1921		\$26,510.00
		3263 hats
1922	\$16,616.00	
		3004 hats

\*(Indicates value placed by makers on suggestions used for which extension service was responsible.)

No attempt was made to secure a comprehensive report of results from the judging schools, but the report of the club leader of Benton county shows that the schools were responsible for a part of the improvement noted at community fairs. Her report follows:

"One hundred women from five communities attended the judging school. Four of these communities used the suggestions given in planning their community fairs or community exhibits. Sixty persons used suggestions in preparing individual club exhibits while 30 found suggestions which they could use at home."

#### **Publicity**

The number of articles written by the specialist or furnished by the Extension News Service was 6, which appeared in 49 issues of newspapers and covered a space of 221 inches. Articles prepared and given out by the county extension service were published in 326 issues and covered 1295 inches of news space. News articles and information relative to clothing occupied 1516 inches in the newspapers of the state during the year.

The estimated value of the clothing project to all the families adopting suggestions was \$206,654.00.

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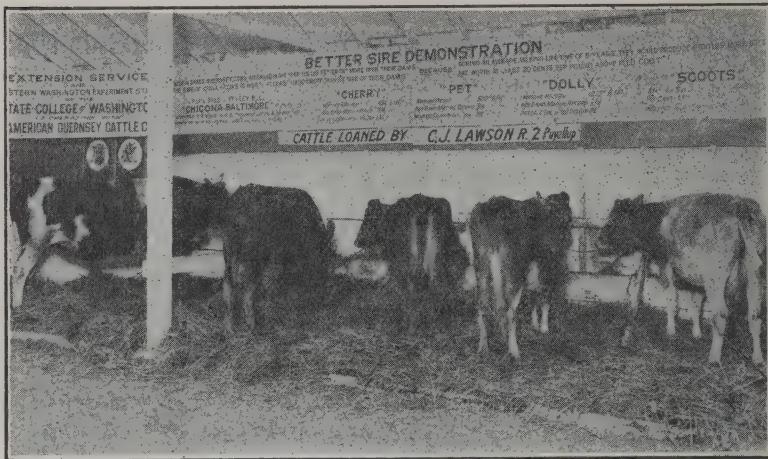
#### **DAIRY EXTENSION WORK**

Abstract of Report of Don G. Magruder, Extension Specialist in Dairying, and F. W. Kehrli, Asst. Extension Specialist in Dairying

The object of the Extension Service in its work in connection with the dairy industry of the state during the past year was to contribute toward the improvement of the quality, feeding and care of dairy stock, and the marketing of the stock, products and by-products.

Increasing the use of high class purebred sires is the greatest need of the dairy industry at the present time. As a result of stressing this work, county agents and dairy specialists have contributed to the placing of 220 high class purebred dairy sires in 25 counties. A purebred sire returns a profit of at least \$300 more than the use of a grade or scrub sire. In five counties bulls were placed in six bull association blocks and nine in bull clubs where they will be used on a large number of cows. The organization of an association block or club is worth about \$300 to the members and community.

The presence of dairy breeders' associations in a county is a great factor in improving the breeding of the livestock. Assistance was given in helping to maintain several old associations and in the organization of 10 dairy breeders' associations with a total membership of 245. An average profit of \$15.00 for each purebred cow over that of a grade was saved. The service in 17 counties contributed in the placing of 320 registered dairy cows. In 10 counties 230 high grade dairy females were placed, these included heifers by high class purebred sires and out of cows with high cow testing association



Showing the Value of a Purebred Sire. During the Year 220 High Class Purebred Sires Were Placed Through the Efforts of the Extension Service.

records. Such service is worth \$20.00 per animal. Obtaining records of butterfat production and feed consumption of the individual cow helps to improve the feeding, culls the herd, saves the right heifers, and proves or disproves the sires, and is worth \$10.00 per cow. Whole or partial records were obtained on 6332 cows.

A feeding demonstration in a herd which was being fed a ration, fully as good as the average, showed a net profit of \$2.00 per cow per month due to the balancing of the ration, so the average herd would profit \$30.00 by using balanced rations. Assistance was given in balancing rations in 20 counties to 515 dairymen.

Silos are fundamental for proper feeding in practically every section of the state. In 15 counties 44 silos were constructed at an estimate of \$400 profit per silo. Assistance in the construction of 7 dairy barns was reported from 4 counties. Considering the many advantages of the use of a modern dairy barn, \$20,000 is a small profit to expect from this work.

In 21 counties the county agents assisted the State Department of Agriculture in securing dairymen to test 40,064 dairy cows for tuberculosis. Assistance was given 30 dairymen in the control of abortion. Boys' and girls' dairy clubs totaling 363 members in 21 counties, were assisted in purchasing calves or cows and in learning how to care for them properly.

The dairy extension specialist wrote a circular on feeding dairy cows, conferred with 115 dairymen on farms, lectured at 79 meetings with an attendance of 2830, gave a Fourth of July address to 300 people, and held 27 demonstration meetings with an attendance of 689. Cooperating with the American Guernsey Cattle Club, a better sire demonstration was arranged at the Western Washington Fair, which 101,000 people attending saw, and part of them studied carefully; assisted in planning a corporation which raised \$30,000 in one county to finance men in the purchase of registered dairy cows; 11 tours were made in which 54 farms were visited with an attendance of 699. This included the better sire tour from Vancouver across the state to Bellingham. Dairy instruction was given to 123 boys and girls attending the club week, while assistance was given at the county, district and state, dairy club contest at the state fair. A dairy booth was prepared and exhibited at seven of the largest fairs.

#### Cow Testing Report

Work on the testing of cows for production was carried on in 15 counties of the state as follows: Clallam, Snohomish, King, Pierce, Thurston, Grays Harbor, Lewis, Wahkiakum, Cowlitz, Skagit, Whatcom, Walla Walla, San Juan, Stevens, and Pend Oreille. This work included 11 old cow testing associations organized or reorganized, involving 236 dairymen owning 5109 cows; two new associations with 100 dairymen owning 1348 cows; four testing circles or clubs with 126 dairymen having 1122 cows, and six herds tested privately with 101 cows. The total number of dairy men involved in the cow testing work was 468, and the number of cows 7680.

Full year records were completed on 3015 cows in 163 herds. There were beefed during the year, or disposed of as unprofitable 375 cows. Dairymen spent for testing \$8,500, which does not include board and lodging for association cow testers.

The specialist assisted with five cow testing association tours in four counties, with an attendance of 181; with nine cow testing demonstrations in five counties with an attendance of 271; with three dairy schools in three counties, with an attendance of 262; total number of meetings 34, attendance 986. One cow testing fair demonstration was staged at the Whatcom County Fair, and viewed by thousands in attendance at the fair. Eight annual cow testing association reports were completed and nine new testers employed and started on the job. Farm visits to the number of 401 were made.

The number of articles written by the extension specialists in dairying or furnished by the Extension News Service was 41, which appeared in 608 issues of newspapers and covered a space of 5168 inches. Articles prepared and given out by the county extension service were published in 561 issues and covered 3865 inches of news space. News articles and information relative to dairying occupied 9033 inches in the newspapers of the state during the year.

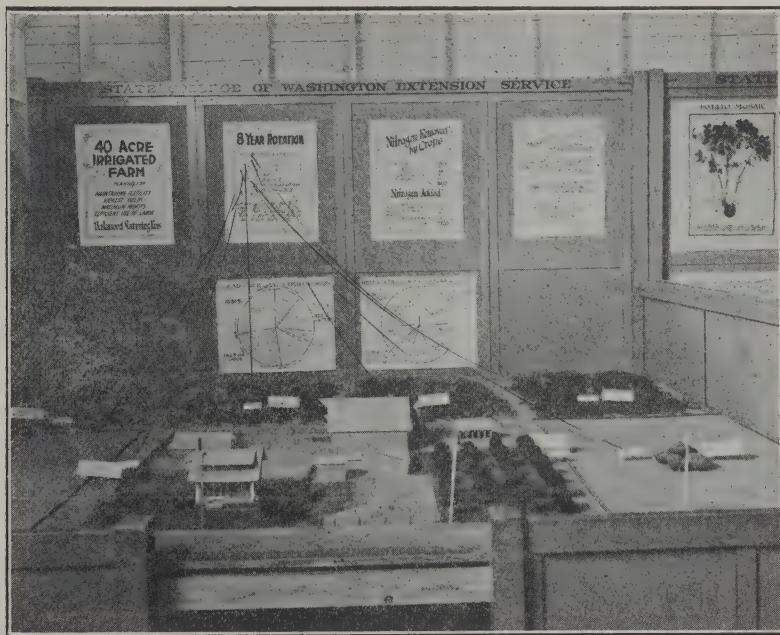
Calculating financial returns on cow testing work on the basis of both savings through the disposal of unprofitable cows, and gains by reason of better feeding, care, management and completed records, make a total of \$63,320.

The incomplete statement of results to which the Extension Service has contributed in dairy work shows a net profit of \$238,440. Service has contributed in dairy work shows a net profit of \$238,440, divided into projects as follows: Registered dairy sires placed, \$66,000; organizing bull clubs, \$4,500; registered females placed, \$48,000; high grade females placed, \$4,600; butterfat and feed records, \$63,220; balancing rations \$15,450; silos constructed \$17,600 and barns constructed or remodeled \$20,000.

## FAIR EXHIBIT EXTENSION WORK

Abstract of Report of Mrs. Winnie Braden, Extension Specialist in Fair Exhibits

The specialist in demonstrational exhibits who was connected with the Extension Service for six months, held 37 conferences with county extension agents in 19 counties, attended 17 committee and project leader meetings with an attendance of 126, assisted in organizing 17 community fairs in four counties, and assisted the secretaries and directors in nine county fairs and three district fairs in standardizing exhibits listed in premium list.



Carrying Methods of Farmstead Arrangement and Rotation of Crops to the People Through Fair Exhibits.

Twenty-six county agents, 7 home demonstration agents and 6 boys' and girls' club agents put on demonstrations of results and methods for club work in 62 community fairs, 17 county fairs, four district fairs, two district livestock shows, and three potato shows and the State Fair.

### **Specialists' Exhibits**

Specialists in clothing, home management, horticulture, berries, potato diseases, crops, bees, farm management, poultry, dairy and livestock, prepared demonstrational exhibits with the assistance of the specialist in demonstrational exhibits. The exhibits were shown in uniform booths and demonstrated better farm and home practices. They were shown at 20 fairs with a total attendance of 271,400.

Because of the highly educational value of the display the Northern Pacific, Oregon-Washington Railroad and Navigation Company, Great Northern and Spokane, Portland and Seattle railways gave the extension service free transportation of the exhibit materials to all the fairs.

### **Judging Schools and Publicity**

As a part of the fair work, Maud Wilson, State Home Demonstration Leader, and Mary E. Sutherland, Extension specialist in Foods and Nutrition, conducted 13 one-day schools relative to judging household exhibits, in 9 counties representing 68 communities and 405 individuals.

One bulletin on score cards and judging household exhibits was published.

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### **FARM MANAGEMENT EXTENSION WORK**

#### **Abstract of Report of R. N. Miller, Farm Management Demonstrator**

Agricultural economics extension work has been organized to demonstrate the most economical and efficient production of farm products and the disposal of such products to bring the highest profit for the farm.

Actual farm demonstrations as well as educational work in marketing was accomplished in 36 counties. These demonstrations included the placing and study of farm record books and cost records; the conducting of farm management schools, short courses and meetings; the placing of farm laborers and farm machinery; assistance in planning farm buildings and surveys; explaining farm leases; conducting farm management tours and preparing fair exhibits.

Farm account books and cost statements totaling 3748 were placed with interested farmers this year through county agents.

bankers, teachers, and farm organizations. Many of the 912 changes in farm management resulted from this work.

Twenty-two farm management schools were held in six counties with an attendance of 269. These schools lasted from three to five hours and as a result farmers mastered the fundamentals of cost work and income tax returns. W. C. Patterson of Puyallup stated regarding the schools: "This certainly shows where a fellow has to figure to save money. We want a school again next year."

County Agents in six counties placed 1641 laborers during the year. County agents assisted with or furnished plans for furthering agricultural economics in 15 counties on 114 farms, reaching 680 people.

Cropping systems were adopted by 587 farmers in 13 counties. The change resulted in larger crops and better distribution of labor. In one county 43,000 acres were affected. Two farm surveys were made in two counties and the results tabulated. Two hundred farmers caused changes to be made on their places. Land owners and tenants in nine different counties were assisted in drawing up equitable leases.

Two farm management tours, attended by 91 farmers, were held. Of these A. J. Craige, Otis Orchards, said: "This is certainly a good way of getting neighbors to see the results of good and bad farming practice."

Thirty farm management demonstration meetings were held in 12 counties with 751 people attending. Ten miscellaneous meetings were addressed in six counties with 376 people present.

A fair exhibit illustrating the best system of farming for "maximum yields, distribution of labor and maintenance of fertility" for both eastern and western Washington was prepared. The exhibit was shown at seven fairs with an estimated attendance of 75,000 people visiting the exhibit. C. B. Hall, banker of Duvall, says, "I wish every farmer in my section could see and study that exhibit. I would like to have you give us a farm management school and set the booth up in one corner of the room and then explain its importance. We need that kind of a demonstration."

County agents of 20 counties, together with the specialist, made 783 farm visits in the interest of the work. Four farm management

clubs to study the best cost of production were formed. As a result of this work farm management on 912 farms was changed.

As a result of educational work farmers organized 19 cooperative marketing associations. These ranged from associations to handle fresh produce such as berries, and other small fruits and vegetables, to standardization of potatoes and apples.

The number of articles written by the specialist or furnished by the Extension News Service was 20 which appeared in 84 issues of newspapers and covered a space of 774 inches. Articles prepared and given out by the county extension service were published in 143 issues and covered 678 inches of news space. News articles and information relative to farm economics occupied 1453 inches in the newspapers of the state.



Farm Management Work Demonstrated That \$1.27 Was Saved by Stacking Alfalfa With a Buck Rack Over the Sled Method.

### Savings

The savings resulting from agricultural economics extension work total \$200,122.12, divided, into changes in management on farms, \$52,000.00; savings from using record books for income tax, \$8,000.00; from labor efficiency work, \$1,950.00; savings resulting from associations organized by farmers in 1922, \$31,146.12; through associations organized by farmers prior to 1922, \$93,518.00; from other work and standardization, \$10,508.00.

## **FOOD AND NUTRITION EXTENSION WORK**

**Abstract of Report of Mary E. Sutherland, Extension Specialist in Foods and Nutrition**

The following 19 counties carried on work in foods and nutrition during the year: Adams, Clallam, Cowlitz, Grays Harbor, King, Pierce, Snohomish, Spokane, Thurston, Mason, Kittitas, Yakima, Okanogan, San Juan, Stevens, Pacific, Wahkiakum, Walla Walla and Whatcom. Projects emphasized included the care and feeding of pre-school children; care and feeding of school children; school lunches; milk campaigns and milk feeding demonstrations; food selection for the family and food preservation.

Under the care and feeding of school children, 79 nutrition centers were conducted by community leaders. A survey of 12,066 school children was made with the assistance of nurses and nutrition project leaders which revealed the fact that 2868 of these children were more than 7% underweight. Seventy nutrition classes were organized and conducted by project leaders who were trained by home demonstration agents or the specialist.

The nutrition classes had an enrollment of 2868 children; of this number 620 reached normal height-weight-relationship and 685 made more than normal rate of gain. As a result of these classes, 322 families adopted better care and feeding suggestions.

### **Hot Lunches**

Nutrition project leaders trained by the home demonstration agent or the specialist, create a demand for hot lunches and secured the support of the community.

Hot school lunches were adopted by 158 schools, affecting 10,586 children, with the result that 2477 of the children showed improvement in health. The leaders report a decrease in underweight, contagious diseases and headaches, as well as an increase in scholarship and better discipline.

### **Care and Feeding of Pre-School Children**

A survey was taken in nine communities in 4 counties by holding a baby clinic in communities requesting the work. These clinics resulted in 308 children being weighed, measured, examined and diets prepared for the measured feeding of the children according to age.

### Milk Campaigns and Food Selection

Three counties conducted milk campaigns reaching 17,774 school children. In each county a poster and essay contest was held preceding the campaign. Milk films, window displays and the distribution of milk circulars were features of the campaign. Reports showed that 8,765 children were drinking milk. Follow-up work this year shows an average increase of 23% of milk consumption in the schools while 1,765 children showed improvement in health.



Examining Children in the Pre-School Clinic Under the Direction of Nutrition Workers in the Extension Service.

Food checking charts were kept by 164 families and 33 individual corrective diets were supplied. Six hundred fifty-one families adopted suggestions or changed food habits upon recommendation of the specialist or home demonstration agent,

### Fairs, Exhibits and Judging Schools

Food and nutrition exhibits or pre-school clinics were staged at 16 county fairs by county extension agents or specialists.

At the State Fair, an entire building was given over for nutrition work to the State Federation of Women's Clubs, cooperating with the Yakima county home demonstration agent and the nutrition specialist. Four hundred women were trained in 10 judging schools to plan better community and county fairs and exhibits and to act as judges.

#### Miscellaneous

The nutrition specialist gave addresses on foods and nutrition at meetings of state farm organizations, State League of Women Voters, State and National Mothers Congress and Parent Teachers Associations, State Tuberculosis Associations, State and Regional Red Cross meetings and Nutrition section of the Washington Educational Association.

The specialist is State Councillor for the Extension for State Home Economics Association, State Chairman of Home Economics for the Washington Branch of the National Congress of Mothers and Parent Teachers Association, State League of Women Voters, a member of the Department of the State Federation of Women's Clubs and Chairman of the Nutrition Section of the Inland Empire Teachers Association.

#### Publicity

The number of articles written by the specialist or furnished by the Extension News Service was seven which appeared in 17 issues of newspapers and covered a space of 169 inches. Articles prepared and given out by the county extension service were published in 320 issues and covered 1969 inches of news space. News articles and information relative to foods and nutrition occupied 2138 inches in the newspapers of the state during the year.

Forty-eight training classes were held with an attendance of 470. Four hundred ninety-six conferences were held with an attendance of 570. The specialist gave 156 talks and demonstrations with an attendance of 15,143, and held 413 total sessions for agents and leaders with a total attendance of 24,124. The number of families adopting suggestions offered by all home demonstration agents totaled 2405.

### **Preservation of Fruits and Vegetables**

Fourteen thousand five hundred ninety-three dollars and fifty cents is the valuation of canned fruits, vegetables, meats, jellies, jams, dried fruits and vegetables, cured meats and soap preserved under the direction of county home demonstration agents and the specialist.

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### **HOME MANAGEMENT EXTENSION WORK**

Abstract of Report of M. Minerva Lawrence, Extension Specialist in Home Management.

Home management work was conducted in 26 counties with 7042 persons attending meetings and conferences, and 1458 families adopting suggestions. A summary of the meetings held by the specialist, agents and project leaders during the year, shows there were 33 training classes with an enrollment of 229; 468 conferences with 490 attending; 347 talks and lecture demonstrations attended by 6066 and 476 homes visited.

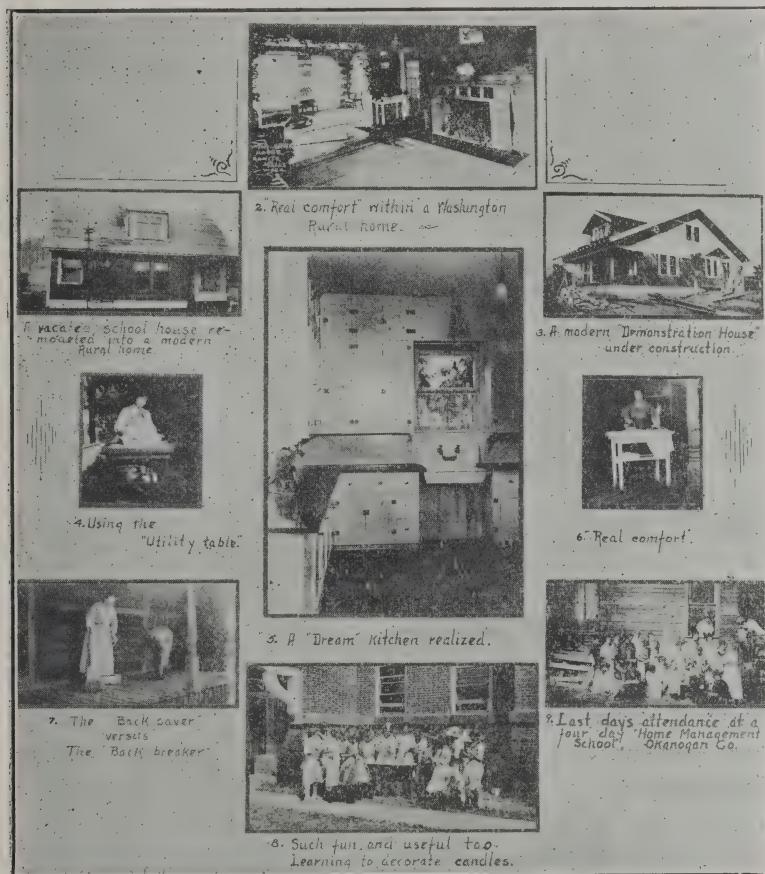
Through the work of the specialist, county agents and home demonstration agents, 210 homes were constructed or made more convenient and attractive. Twenty-one of these houses were constructed as the result of demonstration houses visited in Grays Harbor, Pierce, Pacific, Thurston, Mason and Wahkiakum counties.

One hundred and forty room arrangement designs, including plans for built-in features, were furnished. Also 115 plans for home-made labor saving devices were placed, resulting in the making of 286 devices.

As a part of the varied work accomplished, furniture was re-finished by 23 housewives, kitchen working surfaces were raised to a comfortable height by 61 housewives and 33 women reported the making and use of stain remover or soap.

Testing circles and individual kitchen equipment tests were carried on in 20 counties, with a total of 1181 pieces purchased. In addition to the above labor saving devices, the following home conveniences were installed: 32 water systems, 57 septic tanks, fixtures for four bath rooms, four kitchen sinks, 19 lighting systems and five heating systems. Seventy-seven household accounts and eleven budgets were completed.

Fair exhibits were held at two county fairs, Whatcom and Walla Walla, with county project leaders in charge. The home demonstration agents of Grays Harbor, Pierce, King and Thurston counties were in charge of a joint exhibit at the Western Washington Fair at



The Many Activities of the Home Management Work Conducted in 26 Counties of the State.

Puyallup. The college home management booth was exhibited at the State Fair at Yakima, the Interstate Fair at Spokane and Menlo and Mabton community fairs.

### **Publicity**

The number of articles written by the specialist or furnished by the Extension News Service was 14, which appeared in 111 issues of newspapers and covered a space of 943 inches. Articles prepared and given out by the county extension service were published in 115 issues and covered 492 inches of news space. News articles and information relative to home management work occupied 1435 inches in the newspapers of the state during the year.

Out of the 1181 pieces of equipment placed, 408 tests were used as a basis for estimating a saving of hours from actual use, and money value placed upon the time saved. The equipment with which these tests were made included: Bread mixers, dish drainers, fireless cookers, self-heating irons, pressure cookers, utility tables and vacuum sweepers. The total time saved amounted to 54,530 hours. Taking 35 cents an hour as a basis of estimating the money value, the saving by use of these labor saving devices amounted to \$17,074.55.

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### **HORTICULTURAL EXTENSION WORK**

Abstract of Report of M. D. Armstrong and E. G. Wood,  
Extension Specialists in Horticulture

The demand for assistance on horticultural projects during the past year was greater than at any time before.

Horticultural extension work was conducted in 29 out of 39 counties of the state. A total of 522 meetings and demonstrations were held with an attendance of 13,728. Besides the meetings and demonstrations, 32 tours and three schools were conducted and 208 farm visits were made.

### **Orchard Management**

In orchard management, projects were carried on in soil management, irrigation, pruning, grafting, thinning, harvesting and pest and disease control. Thirty-three meetings attended by 711 orchardists were held in orchard soil management. County Agent O. V. Patton reports 2000 acres sown to cover crop as a result of demonstrations held in Spokane county. County Agent William Meikle reports a value of \$131,650 as a result of fertilizing campaigns.

One hundred fifty-one pruning meetings were held in 20 counties with an attendance of 5018, and seven counties report an increase of \$22,637 resulting from the meetings.

Seventeen grafting demonstrations were conducted in 5 counties attended by 717. In Yakima county 2705 trees were reported saved out of 2783 grafted; County Agent A. E. Lovett reports a saving of \$27,050.00 from the grafted trees.



Showing That it Pays to Thin Fruit. The Thinning Work Demonstrated by the Extension Service Saved Fruit Growers, \$45,535.00 Last Year.

Eighty-seven thinning demonstrations were carried on in 14 counties attended by 2481 people. A larger percentage of orchards were thinned than ever before, but results are not available until after harvest. County Agent William Meikle reports a saving in labor in Chelan county of \$42,500.00 by using systematic thinning methods.

#### Small Fruits

Ninety-two demonstrations and tours were carried on in 11 counties attended by 1458 people, for orchard pest and disease con-

trol. King county reports an increase in crop value as a result of these tours of \$7,375.00.

Seventy-nine meetings and demonstrations were held on small fruit culture in 16 counties attended by 1577 people. Whatcom county reports 400 acres of berries seeded to vetch cover crop as a result of part of this work.

According to recommendations from the extension specialists, 470 acres of cranberries in Pacific county were sprayed.

### Potatoes

Twelve counties conducted a potato seed production campaign in which 50 meetings were held attended by 481 people. Spokane and Stevens counties report increased values of potatoes seed at \$54,480. A better seed campaign for commercial production was conducted in 17 counties, resulting in the introduction of 16,953 bushels of seed. Potato grading work was accomplished in 4 counties, reaching 176 people.

### Publicity

Number of articles written by the specialist or furnished by the Extension News Service was 25, which appeared in 176 issues of newspapers and covered a space of 1651 inches. Articles prepared and given out by the county extension service were published in 583 issues and covered 3300 inches of news space. News articles and information relative to horticulture occupied 4951 inches in the newspapers of the state during the year.

### Value Reported

The total value of the horticultural work reported by the county agents amounts to \$186,011.00, divided into projects as follows: Grafting, \$27,050.00; spraying, \$8,059.00; thinning, \$45,535.00; pruning, \$22,637.00; potato seed production, \$54,480.00; and increased yields from better seed \$28,250.00. For fertilizer work see Soils and Crops.

## LANDSCAPE GARDENING EXTENSION WORK

Abstract of Report of A. M. Doerner,

Assistant Professor of Landscape Gardening and Floriculture

Demonstrations in landscape gardening were conducted in the nine counties of Grays Harbor, King, Pierce, Snohomish, Thurston, Spokane, Franklin, Pacific and Wahkiakum. Assistance was given to 135 homes, 11 parks, 31 schools, three churches, one fairground and two athletic fields.

A total of 42 meetings were held with an attendance of 1180 in 29 communities.

### SUMMARY OF WORK

Oral advice given	Sketch on grounds	Detailed plan in office	Work completed according to plan	Work started according to plan	Intending to follow plan as soon as possible	Do not intend to follow plans
City homes .... 53			2	11	7	1
Farm homes .... 75	7		4	33	26	1
Parks ..... 6	2	3	1	2	3	
City schools .... 1						
Country schools .. 10	5		1	7	2	1
High schools ... 8	4	1		5	2	
Consolidated schools ..... 1		1				
Churches ..... 3					1	
Fair grounds ...	1					
Athletic fields .. 1	1		1			
Other places ... 2		1				

## LIVESTOCK EXTENSION WORK

Abstract of Report of C. M. Hubbard, Extension Specialist in Livestock

County agents of 23 counties made a sire survey in order to locate owners and users of scrub sires. The government "Better Sire" pledge was signed by 157 Kittitas county farmers during the past year. They also purchased 35 purebred sires and 70 purebred females. County agents, during the year have assisted in the placing of 184 sires, 357 purebred females and 53 high grade females, or

a total of 594 head of livestock. Many sires have been directly placed as a result of the Better Sire movement, the number of which it is impossible to obtain.

The livestock specialist stressed the value of purebred sires of quality at 16 county wide meetings where sire talks and breeding lectures were attended by a total of 1161 people. This does not include many such meetings addressed by county agents. Active assistance was rendered by the specialist in selling or placing stock valued at \$3,940.80.

#### **Boys and Girls Livestock Clubs**

The total livestock club enrollment for the state is 544, of these 453 are working with swine, 43 with sheep, 39 with beef cattle and 9 with colts. The livestock specialist, cooperating with county club agents and county agents, staged 31 club judging demonstrations with a total attendance of 298 club members in the counties of Kittitas, Yakima, Benton, Franklin, Adams, Whitman, Spokane, Stevens, Pierce, Grays Harbor, Thurston and Klickitat.

Club work was conducted in cooperation with county agents and club agents along the lines of obtaining high class stock for club members; suggesting proper rations and feeding methods; suggesting good livestock management; obtaining the use of high class sires; conducting livestock judging demonstrations and inspection tours; giving fitting for show demonstrations and securing stronger local leaders.

As a result of the work, stock belonging to club boys and girls is showing greater growth and development and stands higher in the show ring than before, while their home communities have greater faith in the value of the work.

Twenty beef club steers were shown at the State Fair at Yakima while 31 club steers were shown at the Western Royal Livestock Show by 18 club members. Favorable comment was received from breeders, judges and farmers regarding the work of the beef club members.

Hampshire sheep club work with 8 boys and girls in Kittitas county, was especially strong. Their winnings at the State Fair, in heavy open competition, included 1st and 3rd on ram lambs; 1st on ewe lambs; 1st on yearling ewes and 1st on "produce of ewe."

Swine club work in Washington grows stronger each year; for example, the Kittitas county Chester White Club of 10 members saved 7½ pigs to the litter, grew them out and put on exhibit at the county fair. Leonard Newman shipped his litter to the State Fair winning five firsts in the open classes.

County Club Agent W. J. Green of Spokane county quotes the following statement from one of his "conservative local leaders;" "The swine club work in this community for the last two years has put the swine industry on its feet. Last spring there was a demand for at least 60 registered gilts among farmers of the community. Now from 40 to 50 per cent of the farmers are adopting swine club methods in the community."



Because Sheep Owners Followed Extension Service Directions in the Raising of Hampshire Ram Lambs, They Won 1st, 2nd, 3rd and 4th Places at the State Fair

### Yearly Demonstrations

Yearly demonstrations with three purebred livestock breeders in Kittitas and Yakima counties have been successful. This work is being carried on in order to assist in building up a stronger purebred livestock industry in these two important livestock sections. Suggestions were given on the purchase and sale of breeding stock; growth promoting rations; proper pastures; fitting for show; judging demonstrations and general management.

As an example of the successful nature of this work one group of sheep won the following prizes at the State Fair: 2nd on ram lambs; 1st on "get of sire;" 1st on "pen of 4 lambs" and 3rd on yearling ewe.

### **Feeding and Management Work**

Sixteen feeding lectures were given with a total attendance of 202. W. J. Green, county club agent of Spokane county, says that "the improvement shown in swine club work is caused largely by better concentrate rations and pastures suggested by the specialist."

### **Livestock Tours**

Thirty-eight tours of a general, breed or club nature were held with an attendance of 2322 people. These tours were held in Yakima, Spokane, Lincoln, Adams, Benton, Kittitas, Klickitat, Stevens, Clarke, Lewis, Thurston, Grays Harbor, King and Walla Walla counties. Attendance ran from eight or ten up to 400 in the well arranged and conducted Kittitas county tour. In these tours either club judging contests were held or the men induced to take part in the work. The value of high class sires was kept well to the front. In many instances a picnic dinner was served followed by talks by leading breeders, the county agent and specialist, if present.

Judging demonstrations, totalling 45, with an attendance of 1458 people, were given by the specialist in Thurston, Kittitas, Yakima, Benton, Walla Walla, Whitman, Spokane, Lincoln, Adams, Stevens, and Klickitat counties.

### **Livestock Sales**

Livestock sales were staged at Walla Walla, Sunnyside, Ellensburg, Colfax, and Colville. In each instance the county agent or livestock specialist was in active touch with the arrangements. Among the most successful were the Ellensburg Hampshire Ram Sale and the Walla Walla Duroc, Poland China and Berkshire Sales. Four of these five sales were pronounced successes.

### **Most Important Piece of Extension Work**

The Kittitas Valley is making headway toward developing one of the strong Hampshire sections of the country. The county Hampshire breeders association staged their second annual tour and their second annual ram sale. Fifty ram lambs in the 1921 sale averaged \$20.00, while 52 ram lambs in the 1922 sale averaged \$31.06. Several others sold from \$40 to \$60 per head.

## **Publicity**

Number of articles written by the specialist or furnished by the Extension News Service was 38 which appeared in 642 issues of newspapers and covered a space of 4593 inches. Articles prepared and given out by the county extension service were published in 685 issues and covered 4499 inches of news space. News articles and information relative to livestock subjects occupied 9092 inches in the newspapers of the state during the year.

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## **NEWS SERVICE EXTENSION WORK**

Abstract of Report of Lincoln R. Lounsbury, Agricultural Extension  
Editor of Bulletins and Publications.

Newspapers of the state last year printed sufficient material given out by the Extension Service to have issued the Washington Farmer, Western Breeders Journal and Northwest Dairyman for the entire year, with enough left over to print the Pullman Herald for 32 weeks.

This was a wonderful contribution by the newspapers of the state cooperating with the Extension Service of the State College of Washington, in placing constantly before the farm folk of the state, reliable information encouraging a permanent agriculture and a better rural home life. Washington newspapers are doing a splendid constructive work in the building of a great agricultural state.

The statement regarding the amount of material placed, is based upon 52 issues of 24 pages each of the Washington Farmer, using 29,640 inches of news space; 52 issues of 16 pages each of the Western Breeders Journal, using 20,800 inches; 12 issues of 20 pages each of the Northwest Dairyman using 6,200 inches and 32 issues of 16 pages each of the Pullman Herald using 700 inches of news space per issue.

The Extension News Service is founded upon a real service to the papers of the state in giving them the best possible information on better farm and home practices. It is a service which helps them increase their subscriptions among the farmers, because of the timely articles and real value connected therewith.

Because of this real value, and because the papers of the state are recognizing it, the present and future success of the Service rests

in maintaining its high standard and keeping away from any kind of propaganda.

During the period covered by this report, 10,946 issues of the newspapers in the state used 79,095 inches of extension material. This was divided between county extension workers and extension service news as follows: 7427 issues of newspapers used articles given them by the county extension service, while articles given out by the News Service appeared in 3519 issues. The articles given by the county extension service covered 48,094 inches of newspaper space, those given independently by specialists occupied 1917 inches while the News Service placed 29,084 inches, making a total of 79,095 inches.

The expression "News Service," means the various methods used by the Editor in distributing news material to the papers of the state and includes everything which goes over the desk.

During the year 516 articles were sent out from the office, of which the specialists wrote or provided material for the editor to use in 132 articles; 91 were written by specialists independently of the News Service, and 293 written by the editor, 111 of which were credited to the specialists.

#### Summary of Articles and Publications Issued

	Stories	Short Articles	
	from 50-150 wds.		
Extension Service News (every 2 wks.)	25 issues	116	75
Washington Dairy Notes, monthly .....	12		
Cow Testing association summary .....	7		
Boys and Girls Club Stories to papers .....	48		
Special articles to papers .....	60		
Boys and Girls Club Record, 12 issues .....	182		129
	<hr/>		<hr/>
Total stories	425		204

Twenty-five columns of Chips and Splinters, which were used weekly by more than 50 papers were issued, also the 12 issues of the Digest of Extension Service Activities; and the Co-operator, a monthly publication. Fifteen bulletins were edited and three programs arranged.

## **PLANT PATHOLOGY EXTENSION WORK**

Abstract of Report of George L. Zundel, Extension Specialist in Plant Pathology.

During the crop year of 1921-22 the plant pathology work was confined to the control of cereal smut, potato diseases, and peach leaf curl.

### **Cereal Smut Control**

Work on this project was carried on in the following 13 counties: Adams, Walla Walla, Benton, Mason, Columbia, Skagit, Snohomish, Whitman, Stevens, Douglas, Pend Oreille, Franklin, and Kittitas.



**Telling How to Treat Potatoes for Disease is Not Enough, But Actually Showing How it is Done, Puts the Work Across.**

The principle work on wheat smut control (*Tilletia tritici*) was the introduction of copper carbonate dust as a fungicide to control bunt. In the fall of 1921, over 10,000 acres of wheat were treated with copper carbonate to compare it with bluestone and formaldehyde as control measures. The following table gives the average amount of smut for the various treatments:

Bluestone .....	10.9 %	Copper Carbonate.....	7.2 %
Bluestone lime dip.....	11.0 %	Copper Carbonate.....	8.5 %
Formaldehyde .....	9.1 %	Copper Carbonate.....	3.1 %
Formaldehyde lime dip....	10.2 %	Copper Carbonate.....	3.4 %

As a result of these demonstrations over 218,496 acres of wheat were treated with copper carbonate this fall (1922). One peck of seed wheat can be saved for each acre of wheat planted. This means a saving of 54,624 bushels of wheat, or over 21% of the total acreage of fall wheat for this state making a saving of \$53,870.00.

One man in Franklin county, had an increased yield of five bushels of wheat per acre on 600 acres where the seed had been treated with copper carbonate over an equal number of acres that had been treated with formaldehyde.

During 1922 there were 143 wheat smut demonstrations, and 26 meetings on wheat smut with a total attendance of 955 farmers. The following precaution is given out when using copper carbonate:

**Copper carbonate dust is poisonous. Do not inhale the dust. Wear a mask over the mouth and nose:**

#### Oat Smut

Work in Skagit County demonstrated that copper carbonate gives good control of oat smut. During the year there were 68 demonstrations and meetings on oat smut control with a total attendance of 101 farmers and a net saving of \$3,101.

#### Potato Disease Control and Seed Treatment

During the past year work was done in the following 23 counties: Pierce, Walla Walla, Grays Harbor, Cowlitz, Mason, Thurston, Yakima, Lewis, Pacific, Columbia, King, Skagit, Clallam, Spokane, Whitman, Whatcom, Snohomish, Stevens, Pend Oreille, Kittitas, Franklin, Wahkiakum and San Juan.

Demonstration meetings were held throughout the state and proper methods for treating and selecting seed potatoes were demonstrated. As a result, 1615 farmers treated 7497 acres of potatoes with corrosive sublimate, or an increase of 50% over last year.

Four hundred and one farmers who were raising 2909 acres of seed potatoes rogued their fields while for the first time in the his-

tory of the state, farmers west of the Cascade mountains sprayed their potatoes for late blight. This year spraying demonstrations were conducted by 52 farmers on 383 acres of potatoes.

During 1921-22, there were 1922 farmers in attendance at meetings and demonstrations as compared with 1133 for the previous year or an increase of 74.5%.

#### **Peach Leaf Curl**

The use of Bordeaux mixture and lime sulphur was demonstrated at Wawawai and at Penawawa in Whitman County with the result that sprayed trees had no curl, while check untreated trees had over 95% curl.

#### **Publicity**

The number of articles written by the specialist or furnished by the Extension News Service was 35 which appeared in 185 issues of newspapers and covered a space of 1528 inches. Articles prepared and given out by the county extension service were published in 312 issues and covered 1987 inches of news space. News articles and information relative to plant pathology occupied 3515 inches in the newspapers of the state during the year.

Net saving on seed wheat treatment for smut, amounted to \$38,632. This amount does not include 54,624 bushels of seed wheat which was saved by reason of using the copper carbonate treatment.

A total saving in plant disease amounts to \$99,321.00, divided into projects as follows: Seed wheat treatment for smut, \$53,870; potato disease \$42,350.00 and oat smut, \$3,101.00.

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#### **POULTRY EXTENSION WORK**

##### **Abstract of Report of W. D. Buchanan, Extension Specialist in Poultry**

The specialist spent 192 days in the field and 88 days in the office, while an assistant who was employed for two and a half months, spent 48 days in the field and six days in the office. The specialist spent 20 days in organization work, 140 on project demonstrations, 11 on schools, 11 on fairs, and 10 on lectures, conferences, and club work.

The total number of demonstrations held on projects was 333, divided as follows: 121 on Incubation and Brooding, 91 on Feeding and Management, 112 on Culling and nine on Breeding. One five day poultry school was devoted to instruction on the above projects. One school was devoted entirely to training project leaders to assist in giving instruction in Incubation and Brooding, and one other to training leaders to conduct culling demonstrations.

#### **Incubation and Brooding**

A limiting factor in this project was discovered to be the low hatching power of eggs. The people of the state had been allowing the vigor of the breeding stock to run down. They had been feeding for eggs instead of vigor; they were keeping the birds too closely housed, and they were using too many pullets in the breeding pen. It was deemed wise to hit the evil while its effects were apparent so the specialist spent much of his time in pointing out the better way.

It was evident that low hatching power would result in weak chicks. Instruction was therefore given in every detail of brooding; including housing, brooder systems, ventilation, yards, runs, green stuff, feeds and methods of feeding, disease and sanitation. A total of 121 lectures and demonstrations were given with an attendance of 3,937.

The results were most gratifying, showing the average number of pullets raised to be 39.4% of all chicks hatched, or a gain of .8 of one per cent over last year. On the basis of 4,000,000 chicks hatched, this means an increase of 32,000 pullets, which, at \$1.50 each are worth \$48,000.00. Deducting \$22,400.00, the cost of extra feed, etc., we have a saving resulting from this project of \$25,600.00.

#### **Feeding and Management**

Feeding and management work was confined almost exclusively to developing pullets for egg production. This, doubtless, helped to increase the total number of good pullets in the state; but it did not necessarily add anything to this year's egg production. Ninety-one meetings were held, with a total attendance of 2090.

#### **Culling Demonstrations**

Culling demonstrations were held in 22 counties, with a total of 112 demonstrations and an attendance of 3098. The total number

of hens culled was 21,992 and the culled taken out 4802. For seven days following the demonstration the culled were retained and the number of eggs laid checked with the good layers with the result that the culled laid 10% and the good hens 58%.

As a result of these demonstrations 190 flock owners culled 41,989 hens and took out 8529 culled. The culled laid 9.5% and the good hens 51%. In all, 50,650 good hens were selected. The records show that the net profit of culling is 33½ cents per hen kept, which makes a total saving for this project of \$16,967.75.

An interesting comparison of the work accomplished this year with that of last year is shown by the following tables:

Year	Per Cent Culled		Eggs Laid by Culled		Eggs Laid by Good Hens	
	By Specialist	By Owner	Specialist	Owner	Specialist	Owner
1921	20.4	19.2	9.9 %	6.8 %	53.7 %	53.2 %
1922	21.8	20.3	10. %	9.5 %	58. %	51. %

### Breeding Work

As a result of the work on breeding, men in every county in the state are looking for cockerels from hens of high trap-nest records. As an example, one poultryman of Thurston county bought 15 cockerels with dam's record ranging from 250 to 272 eggs. Mason county has bargained for 75 cockerels with dam's record not less than 240 eggs, and best of all, a conference of 50 poultrymen, representing all parts of the state, meeting at Seattle on August 25, voted to use no cockerels after 1923 with a record of less than 225 eggs back of them.

### Publicity

The number of articles written by the specialist, or furnished by the Extension News Service was 37 which appeared in 228 issues of newspapers and covered a space of 2835 inches. Articles prepared and given out by the county extension service were published in 582 issues and covered 2906 inches of news space. News articles and information relative to poultry occupied 5741 inches in the newspapers of the state during the year.

### Fair Exhibits

A poultry booth was prepared and exhibited at eight fairs for a period of 33 days. The booth showed five hens with a trap nest record of 136 eggs and a yearly profit of 75 cents, and another group of five hens with a trap nest record of 217 eggs, and a yearly profit of \$8.70. It was shown that 1500 hens of the first type would give a yearly income of \$225.00 and 1500 hens of the second type a yearly labor income of \$2,610.00. It is estimated that 34,000 people saw this exhibit.



Whatcom County Poultrymen Attending a Week's Poultry School, to Learn How to Handle Their Chickens to Better Advantage.

### Outlook and Goals

Work on incubation and brooding, feeding and management, and breeding is incomplete and will carried on through the year. Culling, as a demonstration is finished; that is, the people know that it pays to cull, and they know how to cull so future work will be confined to training leaders.

Goals, as outlined by the specialist and endorsed by the poultrymen, for four years' work are; an increase of 20 eggs per hen; an increase of 10% in the hatchability of eggs; an increase of 5% in the number of chicks raised, an increase in the number of people keeping cost accounts to 50% of all the people in the business, and an increase of 5% in the margin of profit per dozen hens.

The total attendance at all meetings and demonstrations for the year, not including fairs, was 11,878, a gain of 3,411 over last year. The total financial gain to the state is \$42,567.75.

## **RODENT CONTROL EXTENSION WORK**

Abstract of Report of Leo K. Couch,  
Biological Assistant, Rodent Control

Operations were conducted against ground squirrels, marmots, moles, mountain beaver, orchard mice, pocket mice, pocket gophers, jack rabbits and rats. In addition to this, new rodent problems were worked out with T. H. Scheffer, Division of Biological Investigations. These problems were; trapping of beaver and transporting them alive, where they have become destructive; moles and mice in relation to bulbs and gardens; gray squirrel injury to firs and pines on the prairies and mouse damage to cranberries. A summary of the year's activities follows for each group of rodents.

### **Columbian Ground Squirrel**

An increase in the amount of strychnine and poisoned grain used was noted in the counties having this rodent. The work was thoroughly organized, a Bureau representative being placed in Whitman, Spokane, Stevens, and one in the two counties of Ferry and Okanogan.

### **Orchard Mice**

As a result of the operations against orchard mice, 357 orchardists in the counties of Chelan, Benton, Kittitas and Yakima used 871 ounces of strychnine.

### **Jack Rabbits**

It was a very favorable year for combating jack rabbits. Starting in with summer poisoning, an effort was made to protect the second and third crops of alfalfa in Franklin and Grant counties. A number of demonstrations were given. The most successful kill was 1873 rabbits in one night, with four ounces of strychnine alkaloid dusted on 30 gallons of sliced apples. In these counties, poisoned salt and poisoned cut apples are the most used summer baits.

Winter conditions made poisoning on a large scale successful. At the most favorable time assistants were placed in the counties to help the farmers in putting out poisoned bait and demonstrate the proper mixing. This turned out to be by far the most successful set of demonstrations, which were enthusiastically taken up by the farmers. A system of records was kept in each county in order to obtain as accurate a check as possible.

**SUMMARY OF GROUND SQUIRREL ACTIVITIES**  
 (Private Lands)

County	Areas (Treated acres)	Funds Expended	Quarts poisoned grain distributed	Ounces of Strychnine Used	Number of co- operators
Adams	375	\$ 30.00	0	2.5	9
Benton	500	35.00	100	2.5	20
Douglas	350,000	1000.00	11,200	650	600
Ferry	9,000	125.00	274	100	54
Franklin	600	15.00	20	12	5
Kittitas	1,800	16.50	176	11	12
Klickitat	3,600	48.00	320	20	..
Okanogan	35,000	500.00	823	364	180
Spokane	235,459	2250.00	11,000	1375	512
Pend Oreille	60,000	2550.00	7,883	1600	1131
Stevens	99,522	1840.00	5,254	1288	622
Whitman	313,000	8549.30	37,234	5600	873
Yakima	60	3.00	0	3	3
Totals	1,108,916	\$16,961.80	74,284	11,073	4021

Results of Winter Campaign on Jack Rabbits  
 (Checked by field men and cooperators)

Period 1921-22	County	Poisson	Methods Used			No. Ounces Strychnine Used	Damage re- ported Winter 1921-22
			Traps	Drives	Totals		
Dec.—Feb.	Franklin	13,000	10,000	8,500	31,500	223	\$3,850.00
Dec.—Feb.	Adams	15,000	5,000	15,000	35,000	80	.....
Dec.—Feb.	Grant	41,000	.....	20,000	61,000	350	2,500.00
Dec.—Feb.	Walla Walla	.....	.....	18,000	18,000	..	.....
Dec.—Feb.	Lincoln	.....	.....	2,000	2,000	..	.....
Jan.—Feb.	Benton	8,000	.....	.....	8,000	100	.....
Totals		77,000	15,000	63,500	155,500	753	6,350.00

Investigation of a reported rabbit plague in early fall failed to show any dying off enough to notice a reduction in amount of damage being done. A specimen examined by the Pathological Division, Bureau of Animal Industry, indicated a mild form of rabbit septicemia. However, as the season advanced, most of the rabbits examined were in a healthy condition.

In order to aid in using the jack rabbit for food markets were located in Portland, Tacoma, Seattle and Spokane. Rabbits were trapped around hay stacks in wire enclosures, hog-dressed and shipped to these markets. A glutted market at times, however, did not result in good prices for the meat.

#### **Summary of all Rodent Operations**

During the fiscal year, 12,909 ounces of strichnine alkaloid, including 74,920 quarts of poisoned grain, were distributed on 1,258,061 acres of land by 4670 cooperators. The cost to land owners and cooperators for this work was \$19,733.16. This total does not include the labor used in distributing the poisoned baits. On the basis of \$2.54 per day (\$40 per month and board for farm labor), the average cost per acre would be \$0.016. On 1,245,261 acres of private land the labor for distributing the poisoned grain would be \$19,924.17. The labor cost of cooperators distributing poisoned grain on Federal land was \$204.80. The total work done on Federal lands was 12,800 acres partly covered with 456 quarts of poisoned grain. A total saving of \$1,050,900.00 was reported by 11 counties.

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#### **SOILS AND CROPS EXTENSION WORK**

##### **Abstract of Report of Leonard Hegnauer, Extension Specialist in Soils and Crops**

Soil demonstration work was conducted in the following 25 counties: Clallam, San Juan, Whatcom, Skagit, Snohomish, King, Kitsap, Mason, Pierce, Thurston, Grays Harbor, Pacific, Lewis, Wahkiakum, Cowlitz, Yakima, Kittitas, Chelan, Douglas, Benton, Franklin, Walla Walla, Whitman, Spokane and Stevens. This work included fertilizers, manure, lime and green manure, and was done by the specialist in cooperation with the county agents in these counties. All the other lines of work were conducted on the same basis.

There were 342 soil demonstrations started to show the value of various commercial fertilizers and plant foods, and out of these 205 were completed, while others will be finished later. One hundred twenty-three field demonstration meetings were held with an attendance of 1507. These demonstrations include 11,337 acres with a saving of \$161,647.

In crops and seed improvement with wheat, oats, barley, rye, corn, sorghum, peas and alfalfa, 363 demonstrations were started and 289 were completed. Thirty-nine field meetings were held with an attendance of 401 and a saving of \$82,428. In these demonstrations 30,984 acres were involved. Twenty-two counties as follows received benefits from the work: Pend Oreille, Spokane, Whitman, Stevens, Adams, Franklin, Walla Walla, Benton, Douglas, Kittitas, Yakima, Whatcom, Skagit, Snohomish, King, Pierce, Lewis, Thurston, Mason, Clallam, Grays Harbor and Pacific.

Through the efforts to improve the crops by means of better seed 242 farms secured 12,343 bushels of good clean seed of well adapted varieties as a start for better crops. At the close of the season 94 farms reported 33,914 bushels of improved seed for sale, while it is safe to assume that each of these farmers has enough seed so sow his own acreage for another year in addition to the saleable seed.

Spokane County started three good pasture demonstrations, conducted with pig club boys, using alfalfa and sweet clover as the pasture crops. In Benton County 22 club boys completed their seed corn work, growing about 20 acres of corn. These boys were taught corn growing and seed selection and each boy was required to prepare a 10 ear exhibit which was displayed at three fairs. In the early spring the exhibits will be displayed in local groups at some store where attention will be called to the 425 bushels of corn of seed quality which they produced.

#### **Assistant in Soils and Crops**

During six months beginning April 1, Grover Burnett was on special duty in Yakima County making a survey and giving assistance on soils and crops problems.

It was found that several rotations would be satisfactory and he recommended the following as a type: Alfalfa 3 years; Potatoes 1;



Acid Phosphate on Clover (300 lbs.) per Acre, Produced 2 Tons of Clover per Acre  
Increase Over Plot Where No Fertilizer Was Used.



A Field of Clover With No Fertilizer Produced Only Two Tone of Hay per Acre.  
These Demonstration Plots Were Located on a King County Farm.

Beets 1; Corn 1; Wheat 1. Much fertility is sold through hay potatoes and grain. More livestock should be kept and manure returned. Where livestock is not kept green manure should be used.

### Publicity

The number of articles written by the specialist or furnished by the Extension News Service was nine, which appeared in 149 issues of newspapers and covered a space of 1209 inches. Articles prepared and given out by the county extension service were published in 305 issues and covered 2079 inches of news space. News articles and information relative to soils and crops occupied 3288 inches in the newspapers of the state during the year.

### Improved Seed Project

Name of Crop	Improved Seed Secured		Improved Seed for Sale	
	No. of Farms	No. of Bushels	No. of Farms	No. of Bushels
Wheat	91	10,996	30	19,440
Oats	30	269	16	10,289
Barley	9	52	1	100
Rye	36	567	20	3,425
Corn	58	147	27	660
Sorghum	16	78		
Peas	2	15		
Alfalfa		219		
Totals	242	12,343	94	33,914

Attendance at demonstration meetings amounted to 1908 people, while the attendance at 113 general meetings, leaders meetings and tours numbered 3315, making a total attendance of 5223 at all meetings held.

### Demonstrations and Results

Kind of Demonstration	Number Completed		Meetings at Demons.		Acres in Demonstrations	Resultant Profit due to Increase
	Started	Completed	Number	Total Attendance		
Fertilizers . . . . .	316	186	113	1,421	11,095	\$156,624
Gypsum . . . . .	12	9	9	196	196	4,528
Lime . . . . .	10	9	9	14	14	139
Tillage . . . . .	1	1	1	5	5	356
Crop Rotations . . . . .	3	0	1	1	1	14
Wheat . . . . .	54	24	24	14	14	14
Oats . . . . .	34	34	2	14	14	14
Corn . . . . .	81	77	15	120	934	7,718
Sorghum . . . . .	16	16	16	120	94	2,117
Rye . . . . .	19	17	17	120	87	1,631
Alfalfa . . . . .	68	52	17	156	6,066	25,330
Sunflowers . . . . .	32	30	1	7	243	2,165
Sweet Clover . . . . .	35	23	1	54	26	125
Pastures . . . . .	8	0	1	54	135	950
Clover . . . . .	3	1	2	11	18	18
Peas . . . . .	1	1	1	8	8	8
Vetch and Oats . . . . .	12	12	3	50	37	37
Totals . . . . .	705	492	164	1,919	42,321	\$244,075

**THE STATE COLLEGE OF WASHINGTON, EXTENSION SERVICE**  
**U. S. Department of Agriculture co-operating**

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Elmina White, Assistant State Club Leader.....	Pullman
Gwendolyn Wild, Chief Clerk .....	Pullman
Lincoln R. Lounsbury, Extension Editor .....	Pullman

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**EXTENSION SPECIALISTS**

E. Belle Alger, Clothing Specialist .....	Pullman
M. D. Armstrong, Horticulture .....	Pullman
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Grover Burnett, Soils and Crops .....	Yakima
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Chelan, Wm. Meikle .....	Wenatchee
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## COUNTY AGRICULTURAL AGENTS—Continued

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Whatcom H. B. Carroll, Jr. . . . .	Bellingham
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Yakima, A. E. Lovett . . . . .	Yakima

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Snohomish, Mrs. Harriet Stow . . . . .	Everett
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Spokane Urban, Mrs. Harriet Lycette . . . . .	Spokane
Thurston, Ruth Kennedy . . . . .	Olympia
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Spokane, W. J. Green . . . . .	Spokane
Thurston, Wm. Dunham . . . . .	Olympia
Yakima, E. C. Scott . . . . .	Yakima

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STATE COLLEGE  
EXTENSION SERVICE  
Cows Owned by J. A. Porter and Sons Custer  
Herd in U.S.  
HERD AVERAGED

RUTH AGE 7 YEARS  
525 LBS BUTTER FAT  
\*71% FEED COST  
\*55% PROFIT ABOVE FEED COST

### COW TESTING

1917-18 ..... 283 Lbs. B. PAT

RECORDS FOR YEAR  
BLANCHE AGE 4 YRS.  
401 LBS BUTTER FAT  
\*51% FEED COST  
\*23% PROFIT ABOVE FEED COST

### DEMONSTRATION

in County Cattle Testing Service Tons  
19 ..... 404 LBS. B. PAT

ING SEPTEMBER 1922  
AGNES AGE 7 YRS.  
396 LBS. BUTTER FAT  
\*53% FEED COST  
\*19.00 PROFIT ABOVE FEED COST

1920 ..... 408 Lbs. B. PAT

PIG AGE 4 YRS.  
252 LBS. BUTTER FAT  
\*43% FEED COST  
\*69 PROFIT ABOVE FEED COST

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